

## APPENDIX A

In an exemplary embodiment, a sync version message comprises one or more of the following fields:

1. *isRequest* - indicates whether a SyncMessage is a request message or a response message.
2. *messageId* - a unique id of a SyncMessage. The message id is unique among request messages. Generally, a response message has the same message id as the request message it responds to.
3. *clientURL* - the initiating ObjectStore URL. This field is used by a request message originating from an initiating ObjectStore. It specifies in the first request message from an initiating ObjectStore to a responding ObjectStore in a data synchronization process.
4. *serverURL* - the responding ObjectStore URL. This field is used by a request message originating from an initiating ObjectStore. It specifies in the first request message from an initiating ObjectStore to a responding ObjectStore in a data synchronization process.
5. *generateUpdateTypes* - the update types which the ObjectStore originating the message can produce. An update usually contains an application object along with the meta objects associated with it.
6. *applyUpdateTypes* - the update types which the ObjectStore originating the message can accept.
7. *storeInterfaces* - the type of the ObjectStore originating the message.
8. *storesyncVersionType* - the type of the SyncVersion associated with the ObjectStore originating the message.
9. *objectSyncVersionType* - the type of SyncVersion associated with individual objects in the ObjectStore originating the message.
10. *syncFilter* - the subset filter that defines the set of application objects acceptable to the ObjectStore originating the message.
11. *usableEncodingMethods* - the standard data encoding (encrypting or compressing) methods which the ObjectStore originating the message supports.
12. *dataEncodingMethod* - the standard data encoding (encrypting or compressing) method which the ObjectStore originating the message used to encode the update data enclosed in the message.
13. *userName* - the user name of the initiating ObjectStore. This field is used by a response message origination from an initiating ObjectStore.
14. *password* - the user password of the initiating ObjectStore. This field is used by a response message origination from an initiating ObjectStore.
15. *totalNumberOfSyncUpdatesSent* - the total number of updates enclosed in the message.
16. *totalNumberOfSyncUpdatesReceived* - the total number of updates received by the ObjectStore originating the message in the last message from the remote ObjectStore.
17. *totalBytesOfSyncUpdatesSent* - the total size in byte of the update data enclosed in the message.

18. *totalBytesOfSyncUpdatesReceived* - the total size in byte of the update data received by the ObjectStore originating the message in the last message from the remote ObjectStore before the update data is decoded.
19. *syncUpdates* - the update data in order. Each update contains an object and its associated meta objects to be compared and merged with its replica object in the ObjectStore receiving the message.
20. *store Version* - the SyncVersion of the ObjectStore originating the message.
21. *statusCode* - the status code indicating whether the ObjectStore originating the message succeeded or failed to respond to a request message. This field is used by a response message.
22. *statusDescription* - the human-readable description for a succeeded or failed request processing. This field is used only for a response message.
23. *isAskedForGenerateUpdateTypes* - the flag that indicates whether the ObjectStore originating the message is asking the ObjectStore receiving the message to send the update types it can produce. This field is used by a request message.
24. *isAskedForApplyUpdateTypes* - the flag that indicates whether the ObjectStore originating the message is asking the ObjectStore receiving the message to send update types it can accept. This field is used by a request message.
25. *isAskedForStoreInterfaces* - the flag that indicates whether the ObjectStore originating the message is asking the ObjectStore receiving the message to send its ObjectStore type. This field is used by a request message.
26. *isAskedForUserNameAndPassword* - the flag that indicates whether the ObjectStore originating the message is asking the ObjectStore receiving the message to send its user name and password for authentication. This field is used by a request message originating from a responding ObjectStore.
27. *isAskedForTotalNumberOfSyncUpdatesSent* - the flag that indicates whether the ObjectStore originating the message is asking the ObjectStore receiving the message to send the total number of updates it can send. This field is used by a request message.
28. *isAskedForTotalNumberOfSyncUpdatesReceived* - the flag that indicates whether the ObjectStore originating the message is asking the ObjectStore receiving the message to send the total number of updates it received from the message.
29. *isAskedForTotalBytesOfSyncUpdatesSent* - the flag that indicates whether the ObjectStore originating the message is asking the ObjectStore receiving the message to send the total size in byte of the it can send. This field is used by a request message.
30. *isAskedForTotalBytesOfSyncUpdatesReceived* - the flag that indicates whether the ObjectStore originating the message is asking the

- ObjectStore receiving the message to send the total size in byte of the updates it received from the message.
- 31. *isAskedForSyncUpdates* - the flag that indicates whether the ObjectStore originating the message is asking the ObjectStore receiving the message to send the updates it can produce. This field is used by a request message originating from an initiating ObjectStore.
  - 32. *isAskedForStore Version* - the flag that indicates whether the ObjectStore originating the message is asking the ObjectStore receiving the message to send the Sync Version associated with it.
  - 33. *isAskedForSyncFilter* - the flag that indicates whether the ObjectStore originating the message is asking the ObjectStore receiving the message to send the subset filter defined on it.
  - 34. *isLastRequest* - the flag that indicates whether the message will be the last request from the initiating ObjectStore. This field is used by a request message originating from an initiating ObjectStore.
  - 35. *hasMoreSyncUpdates* - the flag that indicates whether the ObjectStore originating the message has more updates to send. This field is used by a response message.